

Oasis Translator's Aide

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1. INTRODUCTION

The Oasis Translator's Aide is a tool that increases the productivity of a human translator as they create English transcriptions from Arabic radio and TV broadcasts. The Oasis Translator's Aide is an extension of BBN's Oasis system that performs real-time indexing for browsing of broadcast news in English and Arabic. Oasis utilizes five speech and language technologies to automatically create a rich-content transcription of audio: speech recognition, speaker change detection, speaker clustering, speaker identification, and named entity extraction. This system operates in a streaming mode, recording broadcast news data off the air, performing recognition and indexing in real-time and storing the results in a database for later browsing over the Web. In this demo, we show a real-world application of an Oasis system that was deployed into the field in November 2001 as an aid for human translation of Arabic audio and video broadcasts.

2. HUMAN TRANSLATION WITHOUT THE OASIS TRANSLATOR'S AIDE

The translators' finished products are English translations of selected Arabic audio broadcasts. There are typically three major tasks in developing these products: selection, translation, and publication. Selection is the process of choosing a segment of audio or video to translate. Since human translation is a time consuming task, only important portions of a broadcast are translated. This makes selection a critical step in the human translation process for audio and video sources. A translator will often work from recorded audio broadcasts saved in a digital format. The translator "skims" the complete digital audio broadcast listening for segments that are suitable for translation. The translator then replays selected segments, translating the speech while transcribing with a word processor. This transcription stage typically requires much iteration through the audio segment, where the transcriber is "rewinding" the audio stream repeatedly to keep the translation and playback in synch. Only after the translator feels that the translated audio segment is accurate and complete is the document published.

3. OASIS TRANSLATOR'S AIDE

The Oasis Translator's Aide improves the translator's productivity by incorporating BBN Oasis human language technologies into the translator's working environment. The Oasis Translator's Aide architecture consists of one or more BBN Oasis Audio Indexers and a Translator's Aide server, as shown in Figure 1. The Translator's Aide server is a Microsoft Windows web server that is visible to the user's desktop machine. The user's desktop is only required to have a supported browser (IE 5.0+), Real Networks RealPlayer for Audio playback, Microsoft Word (2000 or XP), and a Translator's Aide Microsoft Word macro file.

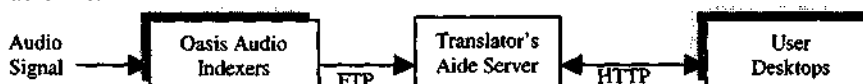


Figure 1: Conceptual System diagram

The Oasis Translator's Aide improves the selection process by automatically transcribing a complete audio broadcast while marking all named-entities and speaker turns. This changes the translator's task from one of listening (foreign language interpretation) to reading (foreign language translation). The Oasis Audio Indexers produce transcriptions of the complete audio broadcasts and publishes them to the

Translator's Aide Server. The translator uses a web browser to view the Oasis transcriptions. The translator is able to skim the Oasis transcriptions with accompanying audio faster than using the audio signal alone. Named-entity detection and speaker identification provide the translator many helpful visual cues within a transcription that serve to focus attention on terms that may be important to him. When the translator is viewing an Oasis transcription, he can mark segments for immediate translation or for future review, as shown in Figure 2.

Once a segment has been marked for translation, a single-mouse click presents the original transcription as well as an area for translation in Microsoft Word (2000 or XP), as shown in Figure 2. In this view, the translator is free to transcribe in Microsoft Word while controlling the playback of the audio segment using keystrokes or foot pedals. During audio playback, the transcription pane will highlight the word that is currently being spoken. This gives the translator the ability to follow the transcription visually while listening to the original audio broadcast. The Translator's Aide also provides the ability to easily select the starting point of audio playback from any word within the audio segment. The translator can pause and resume audio playback as well as rewind a user definable amount of time. At any time, the translator can save the translation for future modifications or for publishing.

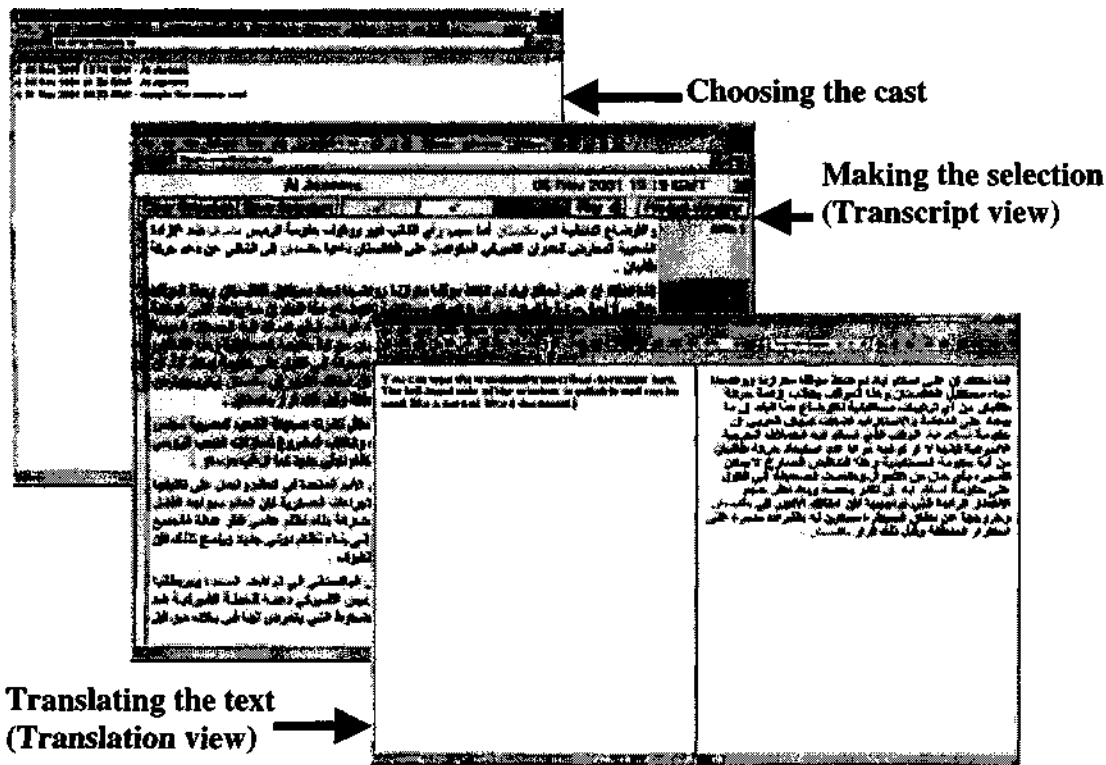


Figure 2: Oasis Translator's Aide

4. DEMONSTRATION

This demo will show the advantages of using the Oasis Translator's Aide when translating Arabic audio broadcasts into English transcriptions. We will perform the key steps for Oasis aided translation: choosing a Oasis cast for browsing, selecting a ranges of text to translate, and performing the translation in the translator editor while using keystrokes and foot pedals to control audio playback.